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ABSTRACT

Research has shown a sharp drop in cocaine use among high school students and young adults since 1986. Alternative explanations for this decline were explored using questionnaire data from the Monitoring our Future project which involves annual nationwide surveys of high school seniors. Univariate and bivariate analyses examined each graduating class from 1976 through 1988; multivariate analyses focused primarily on the classes of 1985 through 1988. The results showed important parallels with earlier analyses of the decline in marijuana use. Although lifestyle factors (e.g., religious commitment, truancy, evenings out for fun and recreation) showed strong links with the individual's use of marijuana and also cocaine, these lifestyle trends cannot account for the declines in use of either drug. Importantly there has not been any reduction in reported availability of either drug. Instead, increases in perceived risks and disapproval appear to have contributed substantially to the recent declines in use of marijuana and cocaine. The findings provide strong support for the use of realistic information about risks and consequences as an important ingredient in drug use prevention efforts. Coupled with the availability findings, the results emphasize the importance of demand (as opposed to supply) reduction efforts. (Author/BHK)

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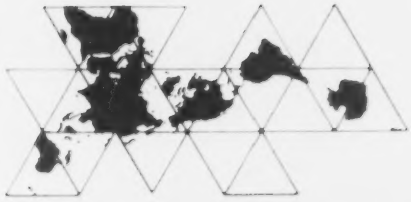

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paper 29

LINKING TRENDS IN COCAINE USE TO PERCEIVED RISKS, DISAPPROVAL, AND LIFESTYLE FACTORS: AN ANALYSIS OF HIGH SCHOOL SENIORS, 1976-1988

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Monitoring the Future Occasional Paper 29

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ABSTRACT

Cocaine use among high school students and young adults has dropped sharply since 1986. This paper explores alternative explanations for that decline, using questionnaire data from annual nationwide surveys of high school seniors. Univariate and bivariate analyses examine each graduating class from 1976 through 1988; multivariate analyses focus primarily on the classes of 1985 through 1988. The results show important parallels with our earlier analyses of the decline in marijuana use. Although lifestyle factors (e.g., religious commitment, truancy, evenings out for fun and recreation) show strong links with individuals' use of marijuana and also of cocaine, these lifestyle factors have not trended in ways that can account for the declines in use of either drug. Importantly, there has not been any reduction in reported availability of either drug. Instead, increases in perceived risks and disapproval appear to have contributed substantially to the recent declines in use of marijuana and cocaine. The findings provide strong support for the use of realistic information about risks and consequences as an important ingredient in drug use prevention efforts. Coupled with the availability findings, the results emphasize the importance of demand (as opposed to supply) reduction efforts.

NOTE: A much shorter version of this paper is scheduled for publication in the June, 1990 issue of Journal of Health and Social Behavior.

INTRODUCTION

It is hard to imagine any dimension of behavior in the last two or three decades which has changed more dramatically, or with more worrisome implications, than the use of illicit drugs by youth and young adults. Marijuana has been the most widely used; rates rose during the late 1960s and most of the 1970s, so that by 1979 fully two-thirds of young adults (age 18-25), and nearly as many high school seniors, reported some consumption of the drug (Fishburne, Abelson, and Cisin 1980; Johnston, O'Malley, and Bachman 1988; National Institute on Drug Abuse 1988). But 1979 was a turning point, and during the 1980s marijuana use among seniors and recent graduates declined steadily (Johnston et al. 1989; O'Malley, Bachman, and Johnston 1988). The use of cocaine, a more dangerous illicit drug, followed a somewhat different trajectory; prevalence rose during the late 1970s, remained relatively unchanged during the first half of the 1980s, and only very recently showed clear signs of a decline (Johnston et al. 1989).

Although the declines in usage rates for marijuana and cocaine began at clearly different points in time, they have two very important features in common: 1) each was accompanied by—actually, slightly preceded by—a sharp shift in attitudes about the drug; 2) in each case, the decline in use was <u>not</u> accompanied by any decline in perceived availability of the drug. We have for some years offered the hypothesis that the more danger that young people associate with a drug, the less likely they will be to use it (e.g. Johnston 1982; Johnston, Bachman, and O'Malley 1981). In the case of marijuana, some of the earliest supporting evidence came in the form of the cross-time aggregate level trends in attitudes and use. Additional evidence supporting this interpretation was reported by Johnston (1982, 1985), who showed that concerns about marijuana's effects on physical and psychological health were among the leading reasons seniors gave for abstaining from, or quitting, marijuana use <u>and</u> that the proportions of abstainers or quitters mentioning these reasons were increasing.

A more recent paper explored in some considerable detail the link between attitude changes and the decline in marijuana use (Bachman, Johnston, O'Malley, and Humphrey 1988). This analysis contrasted two possible explanations for the decline in marijuana use: 1) that young people have become more conservative in general, or 2) specific changes in views about marijuana have led to the decline in use. We reached two broad conclusions: First, we found that "... although individual differences in lifestyle are very important in understanding individual variations in marijuana use, the data offer no support for the proposition that any sort of overall conservative shift underlies the recent decline in marijuana use" (p. 107). Second, we noted that perceived risks of regular marijuana use, as well as personal disapproval of such use, rose sharply between 1978

and 1986, and we concluded that "... if there had not been a distinct increase in negative attitudes about marijuana, we would not have found steadily lower levels of marijuana use in each succeeding class of high school seniors since 1979" (p. 107).

While this appreciable decline in marijuana use was occurring during the first half of the eighties, cocaine use remained at peak levels, despite growing governmental efforts to contain its use; and the casualties from cocaine continued to rise (e.g. Johnston 1989; Johnston et al. 1989; National Institute on Drug Abuse 1989). The national strategy was weighted heavily toward supply reduction; but the empirical evidence, including our own trend data from seniors on perceived availability, suggested that it was not working. Our belief that risk-related attitudes were important determinants of the secular trends in marijuana use led us to conclude that a shift in young peoples' perceptions of the risks associated with cocaine use—in particular with experimental and occasional use—would be necessary to achieve a reduction in use (e.g. Johnston, O'Malley, and Bachman 1984, 1985). The trends we eventually observed in perceived risk, disapproval, and active use of cocaine offer some support for this hypothesis. In the present paper we examine more closely the link between attitudes about cocaine and the decline in its use, and we again test the competing hypothesis that a general shift in the direction of more conservative lifestyles might better explain the downturn in cocaine use which has been occurring since 1986. Before presenting these new findings, however, we briefly review and update several topics covered in our previous report (Bachman et al. 1988).

BACKGROUND, THEORETICAL CONSIDERATIONS, AND ANALYSIS STRATEGY

We and others have consistently found that certain kinds of individuals are more likely than others to use drugs; and those same individuals are also more likely to get involved in other kinds of "problem" behavior (Bachman et al. 1988; Bachman, Johnston, and O'Malley 1981; Jessor, R., Chase, and Donovan 1980; Jessor, R. and Jessor, S. L. 1977; Johnston 1973; Johnston, O'Malley, and Eveland 1978; Smith and Fogg 1978; and for further reviews and summaries see also Glynn, Leukefeld, and Ludford 1983; Jessor 1979; Jones and Battjes 1985; Kandel 1978, 1980, 1982; Lettieri and Ludford 1981; Murray and Perry 1985). Several analyses of data from the Monitoring the Future project have documented the findings summarized below:

1. It continues to be true (a) that drug use is above average among those less successful in adapting to the educational environment (as indicated by truancy and low grades), those who spend many evenings out for recreation, those with heavy time commitments to a job, and those with relatively high incomes; and (b) that drug use is below average among those with strong religious commitments and those with conservative political views.

2. It also remains true that the background factors of sex, race, parental education, number of parents in the home, urbanicity, and region add relatively little in regression analyses when combined with lifestyle and experience factors. (Bachman et al. 1988, p. 97)

Given the extent to which drug use and deviance in general are linked to the lifestyle and experience factors described above, it is not surprising that one of the explanations proposed to account for the recent decline in marijuana use was the possibility ". . . that there has been an increase in the general conventionality of adolescents during this same historical period" (Jessor 1985, p. 259). As indicated above, however, we found no evidence that any shift toward greater conventionality could account for the decline in marijuana use. Another set of findings from the Monitoring the Future project also argues against the "general increase in conservatism" explanation; during the interval from 1979 through 1986, while marijuana use was declining substantially, we did not observe parallel declines in other kinds of deviant behavior, such as use of alcohol, use of cocaine, and overall delinquent behavior. (For a more extensive examination of the generality of deviance, making use of panel data from the Monitoring the Future project, see Osgood, Johnston, O'Malley, and Bachman 1988.)

Following the strategy used in our recent analysis of marijuana, we divide predictors (i.e., correlates) of cocaine use into two categories: 1) individual "lifestyle variables" which relate not only cocaine use but also to other drug use, delinquent behavior, and a variety of other "problem" behaviors; 2) drug-specific factors, in this case those which relate directly to cocaine use. This distinction, although too sharp and simple to correspond fully to the real world, nonetheless continues to be a useful way of organizing our data and analyses.

The lifestyle factors included in our analysis have already been mentioned; they are grades, truancy, hours worked per week, average weekly income, religious commitment, political liberalism/conservatism, and frequency of evenings out for recreation. Sex is also included, in part as a proxy for other lifestyle factors not measured. Each of these factors has shown some fairly consistent relationship with drug use among high

school seniors; however, our analyses of the graduating classes of 1976 through 1986 also revealed some changes, particularly the fact that political conservatism and (to a lesser extent) religious commitment became less strongly correlated with drug use (Bachman, O'Malley, and Johnston 1986). Nevertheless, we found no changes in relationships, nor any secular trends in the levels of these predictor variables, which could account for the recent secular trend in marijuana use (Bachman et al. 1988). In the analysis which follows we will consider whether the same conclusion applies to changes in cocaine use.

The second category of predictors is drug-specific, consisting of factors which relate primarily to the use of a particular drug rather than to drug use in general (or problem behavior in general). These include potential effects of using the drug, availability, friends' acceptance or disapproval of use, as well as individuals' perceptions of each of these dimensions. "These drug-specific factors are subject to change over time. Indeed, we consider them much more likely to change than the general factors related to the broad range of problem behaviors. Accordingly, given a trend of rising or falling use of a particular drug (rather than drugs in general), we consider it most likely that the explanation would be traceable to changes in drug-specific factors" (Bachman et al. 1988, p. 95).

The earlier analysis of marijuana examined two drug-specific factors, perceived risk of marijuana use and disapproval of marijuana use, and found that changes in these dimensions could account for virtually all of the secular trends in marijuana use from 1976 through 1986. The present analyses focus on another drug and another set of drug-specific dimensions, perceived risk of cocaine use and disapproval of cocaine use. We also include some data on another drug-specific dimension, availability (or, more accurately, perceived availability).

METHODS

Subjects

The data for these analyses were obtained from the Monitoring the Future project, an ongoing study of youth conducted by the Institute for Social Research, which has surveyed high school seniors each year since 1975. The study design has been described extensively elsewhere (Bachman and Johnston 1978; Bachman, Johnston, and O'Malley 1987; Johnston et al. 1989). The present analyses include data collected from 13 graduating classes, 1976 through 1988.

A multistage sampling procedure (Kish, 1965) is employed each year to select respondents representative of all seniors in the 48 contiguous states: Stage 1 selects particular geographic areas, Stage 2 selects one or more high schools in each area (a total of 130 to 135 schools, both public and private), and Stage 3 selects seniors within each high school.

Student survey response rates averaged 82 percent across the 13 surveys, and rates averaged 83 percent for the most recent years (1985 through 1988). Absenteeism on the day of the survey accounted for nearly all of the nonresponse; analyses reported elsewhere suggest that if absentees could have been included in the surveys the estimates of drug use levels would increase only slightly, and trend patterns across years would remain essentially unchanged (Johnston and O'Malley, 1985; see also Johnston et al. 1989).

Data were collected via questionnaires administered in classrooms by locally based Institute for Social Research representatives and their assistants. The obtained sample sizes total approximately 17,000 per year. For most findings reported here, however, the annual sample sizes are 3,000 or slightly more because each annual survey includes five different questionnaire forms, and the items dealing with beliefs and attitudes about drugs appear on single forms. (Each classroom administration includes all five forms, with each form assigned randomly to 20% of the respondents.) Because of the large number of cases, sampling errors are very small; any relationship that we treat as substantively important far exceeds conventional standards for statistical significance.[1]

Measures

The questionnaire items and indexes dealing with cocaine use, perceived risks of cocaine use, and personal disapproval of cocaine use are presented in Table 1. Similar items dealing with marijuana use were included in each questionnaire segment (see Bachman et al. 1988, Table 1, for marijuana item wordings). Descriptions of most other measures are incorporated in Table 2. Complete question wordings for all items, in all

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[1]The correlational analyses reported herein excluded subjects who had missing data on one or more of the measures of annual cocaine use, annual marijuana use, personal disapproval of either drug, or perceived risks of either drug (including those who indicated "can't say, drug unfamiliar" instead of rating perceived risks). Also excluded from the analyses were small numbers of respondents whose answers to the series of items on perceived risks, or the series on disapproval, were inconsistent or failed to provide meaningful distinctions among different drugs and different levels of use (see Bachman et al. 1988, footnote 1, for details). These several restrictions had the effect of excluding about nine percent, on average, of the participants responding to Form 3, which contains the disapproval items. For Form 5, which contains the items on perceived risks, the restrictions excluded about twelve percent of the participants in the years 1985-1988, and somewhat larger proportions during earlier years (when more seniors claimed they were not familiar enough with cocaine to rate its risks).

questionnaire forms, along with response distributions and missing data rates, have been published separately (see Bachman et al. 1987 and prior volumes in the same series). The analyses reported here focus on the measure of drug use during the previous 12 months. The seven response categories (shown in Table 1) provide a roughly logarithmic scale of use. Recent analysis based on four waves of panel data yielded reliability estimates of .82 for the 12 month measure of cocaine use and .88 for the 12 month measure of marijuana use, calculated by the Wiley and Wiley (1970) method.

RESULTS

Overview of Trends in Drug Attitudes, Perceptions, and Behaviors

Before examining data on cocaine, it will be useful to review the key trends in marijuana use, perceived risk, disapproval, and perceived availability, which we can now extend to include all classes of high school seniors from 1976 through 1988. Figure 1 shows that both perceived risk and disapproval associated with marijuana use declined slightly during the first year or two, and then rose strongly and steadily during the 1980s. The figure also shows the corresponding rise and subsequent decline in rates of self-reported marijuana use. One other finding displayed in the figure is that perceived availability of marijuana showed little change; throughout the whole period the great majority of seniors thought it would be fairly easy or very easy to get marijuana, thus indicating that availability did not play an important role in the recent changes in marijuana use.

The findings for cocaine, displayed in Figure 2, match the findings for marijuana in one very important way: the trend in self-reported cocaine use shows a fairly close inverse relationship to the trends in disapproval and in perceived risks. We must add, however, that the fit between these trends seems particularly good for the recent period in which cocaine use was declining; the fit seems a bit less good for the 1976-79 period during which cocaine use was sharply rising. (Because the mean rates of cocaine use are very low, it is difficult to detect the trends on the scale used in Figures 1 and 2; in order to present those findings more clearly, we added the dashed line in Figure 2 showing the trend in cocaine use multiplied by a factor of three.) Again like the pattern for marijuana, the decline in cocaine use could not be linked to availability, since perceived availability actually rose somewhat during the recent decline in use.

But in several other ways the findings for cocaine in Figure 2 and those for marijuana as shown in Figure 1, are substantially different. We note first that the perceived availability of cocaine shifted much more over time than did the perceived availability of marijuana; in particular, during the late 1970s, the period when self-reported cocaine use was increasing, there were also increasing proportions of seniors who felt that they could obtain cocaine if they desired it. Another set of contrasts between the two drugs, clearly suggested by the different heights of the trend lines in Figures 1 and 2, is that throughout the study period cocaine was perceived as more dangerous, was more strongly disapproved, was seen as less easily available, and was less often used (and by smaller proportions of seniors), compared with marijuana.

In sum, an examination of Figure 1 indicates that the relationships between trends in marijuana attitudes and trends in marijuana use, which we earlier documented for the period between 1976 and 1986, have continued through 1988. More important, Figure 2 suggests that similar overall relationships between attitude trends and behavior trends may apply to the drug cocaine; however, there are also indications that these relationships may appear most clearly for the recent period of decline in cocaine use.

Trends in Lifestyle Factors Relating to Cocaine Use

Table 2 presents two kinds of trend data for each of the lifestyle variables, shown separately for each of the 13 senior classes (1976-1988). Of primary importance, the table presents bivariate relationships: mean annual cocaine use (on the seven-point scale) for each predictor category, along with product-moment correlations showing strength of linear relationship. (We also calculated eta coefficients and found them to be nearly identical to the product-moment correlations, thus indicating that there were no important non-linear relationships.) Table 2 also displays percentage distributions for each category of lifestyle predictor, so that any shift in the proportions of seniors falling into each category can be discerned.

Two broad conclusions based on Table 2 parallel our earlier findings for marijuana: First, over all 13 senior classes there is a good deal of consistency in relationships between lifestyle factors and cocaine use—the same factors which are predictive in one year are also predictive in other years. Second, there have been no very large secular trends in these lifestyle factors—certainly none of a size and pattern which would be likely to explain the recent trends in cocaine use.

Another conclusion derived from Table 2 is that the overall secular trend in cocaine use is evident in every subgroup of every variable shown—in virtually every instance cocaine use rose from 1976 through 1980, and declined from 1986 through 1988. Although the secular trend for cocaine is different from that for marijuana, as indicated in our comparison of Figures 1 and 2, it is worth noting that our earlier analysis of marijuana use found the same sort of ubiquity in secular trend across all subgroups (Bachman et al. 1988).

A closer examination of Table 2 reveals another general pattern which is consistent with our earlier work. Although the secular trend in cocaine use is evident for all categories of lifestyle variables shown, the trend is more pronounced in the "higher risk" categories. The findings for truancy, presented graphically in Figure 3, show this pattern especially clearly. For the subset of seniors who reported relatively high rates of truancy, mean cocaine use rose sharply from 1976 through 1980, and it also declined sharply from 1986 through 1988. But among seniors who reported no truancy, these differences from one class to another are quite weak. And, as can be seen in Figure 3, subgroups involving intermediate levels of truancy reflect intermediate amounts of change. Another clear example of this sort of pattern is provided by the findings for religious commitment, plotted in Figure 4; again the secular trend is much more pronounced among the "higher risk" individuals (low religious commitment) than among "low risk" individuals (high religious commitment). But here again we also see that the overall secular trend pattern appears, to at least some extent, in each subgroup; all show the rise during the late seventies and the decline from 1986 onward.

It is not necessary to review the other dimensions in Table 2 in detail, especially since the basic findings parallel those presented and discussed in our earlier analysis of marijuana use. We can summarize the full set of correlational findings quite briefly as follows: throughout the past decade and more, high school seniors at greatest risk of involvement in cocaine use have been males, those with poorer grades, those high in truancy, those who work long hours in part-time jobs (during the school year), those with relatively high incomes (linked, of course, to long hours of part-time work), those with little or no commitment to religion, those who describe their political preferences as radical, and those who spend frequent evenings out "for fun and recreation."

One noteworthy difference between the present correlational findings for cocaine and our earlier findings regarding marijuana is that the relationships involving cocaine use are consistently and substantially smaller than those involving marijuana use, reflecting the fact that throughout the period under study there has been much less cocaine use than marijuana use—in other words, there is less variance to be

explained. As we shall see later, multivariate analysis using all of the measures in Table 2 account for a bit less than one tenth of the variance in cocaine use, whereas the same set of measures accounted for about one quarter of the variance in marijuana use (Bachman et al. 1988, Table 4).

As in all such correlational analyses, there is some degree of uncertainty about the extent to which the designation of "predictor" variables corresponds to causal factors. In particular, one could argue plausibly that truancy, low grades, and frequent evenings out may be direct or indirect causes of some drug use; however, one could also argue plausibly that being a drug user can contribute directly and indirectly to poor school performance and frequent evenings away from home. We think that both causal directions, as well as causal patterns in which both sets of variables reflect other more fundamental causes, are applicable to the explanation of the individual-level correlations displayed in Table 2.

When we turn from individual-level relationships to overall secular trends in cocaine use, however, the data displayed in Table 2 argue strongly against any interpretation of the secular trends in cocaine use as somehow resulting from trends in the lifestyle variables, and the data also argue against an opposite interpretation of trends in cocaine use causing trends in the lifestyle variables. The primary argument against such interpretations has already been mentioned here and discussed at length in our analysis of marijuana: those trends that do appear in the lifestyle variables are neither very large nor consistent with one another, and none shows trends which clearly parallel the trends in cocaine use. As an example of the latter point, we note that proportions of seniors with high truancy rates remained essentially unchanged during the late 1970s while mean cocaine use more than doubled; then proportions of truants declined slightly during the first half of the 1980s while cocaine use did not; then truancy remained unchanged from 1986 to 1988 while mean cocaine use dropped by more than a third. Examination of the other bivariate analyses included in Table 2 also fails to reveal any evidence that changes in general lifestyles or "conservatism" underlie the recent trends in cocaine use. We will later consider evidence at the multivariate level; first, however, we examine two drug-specific predictors which do show substantial secular trends.

Trends in Perceived Risk and Disapproval Relating to Cocaine Use

As we discussed earlier, and as shown in Figure 2, the recent upturn in perceived risk and disapproval regarding cocaine was accompanied by a decline in use. In Table 3 we display relationships between these drug-specific attitudes and self-reported use of cocaine; the

table follows the same format as employed in Table 2, but the patterns of results are quite different.

We begin our examination of Table 3 by looking at seniors' views about the use of cocaine on a regular basis. In each of the 13 graduating classes, from 1976 through 1988, three-quarters or more perceived regular cocaine use as posing great risks, and similar proportions expressed strong disapproval of such use. In recent years these proportions increased substantially, so that very large majorities saw regular cocaine use as entailing great risk (88 percent in the class of 1986, and 95 percent in the class of 1988), and nearly as many expressed strong disapproval (83 percent in the class of 1986, and 90 percent in the class of 1988). Only a handful of seniors in any year saw "no risk" in regular cocaine use, and a few more rated the risk as "slight"; together these numbers perceiving little risk in regular use reached about nine percent in the class of 1979, declined to about three percent in the class of 1986, and dropped to about one percent in the class of 1988. The trends in proportions expressing no disapproval of regular cocaine use are much the same. As Table 3 clearly indicates, perceived risk and disapproval regarding regular cocaine use are strongly linked to actual levels of (self-reported) cocaine use. Among those who saw great risk in regular cocaine use, very few reported that they themselves had used the drug at all during the past year (and practically none reported enough to be characterized as "regular use"). The same can be said for those who expressed strong disapproval of regular cocaine use.

We next consider seniors' reactions to a much more limited level of involvement — trying cocaine once or twice. As shown in Table 3, more than a third of all seniors in each class from 1979 through 1986 believed that trying cocaine even once or twice involved great risks, and the proportion rose to half or more of the seniors in the next two years. The proportions who strongly disapproved such experimentation with cocaine were substantially higher throughout the period, but there was still room for a fairly sharp rise from 65 percent in the class of 1986 to 76 percent in the class of 1988. Here again we see a strong association between the attitudes about cocaine and self-reported use. In particular, among those who saw great risk in even trying cocaine, as well as those who expressed strong disapproval of doing so, actual use was almost zero.

The central question to be examined in Table 3 is whether the secular trend in cocaine use remains once we "control for" attitudes. Recall that Table 2 showed that for every category of each of the lifestyle variables the same basic secular trend in cocaine use was evident, particularly the downturn from 1986 to 1988; in other words, the secular trend did not disappear in the face of (bivariate) "controls" for lifestyle factors. In Table 3 the story is quite different, however. Practically none of the seniors with strongly anti-cocaine attitudes reported any use of the

drug, no matter which year, and thus there was no room for a downturn to occur in the 1986 to 1988 interval. At the other end of the attitude continuum, among seniors in the very small categories expressing the most "accepting" views regarding cocaine, there was a rise in usage rates from 1976 through 1979, and mostly random fluctuations thereafter. The patterns just described are also displayed graphically for perceived risks of trying cocaine (Figure 5), and of regular use (Figure 6). The trends in these figures stand in sharp contrast to those in Figures 3 and 4; specifically, we do not observe a clear downturn in use once we control levels of perceived risk.

These bivariate analyses suggest a conclusion which parallels (in its general form) the one we reached earlier with respect to marijuana: if there had not been a substantial secular trend in attitudes about cocaine, starting about 1986, the (smaller) secular trend downward in cocaine use very likely would not have occurred.

Multivariate Analyses Combining Lifestyle Factors, Attitudes, and Secular Trends

The preceding sections reported computations carried out separately for each of 13 classes of high school seniors. We presented trends in cocaine use and in attitudes about cocaine (see Figure 2). We then examined bivariate analyses which revealed that cocaine use is correlated with (and perhaps in part caused by) a number of lifestyle factors such as educational success (as indicated by grades and truancy), religious commitment, and evenings away from home for fun and recreation (see Table 2, also Figures 3 and 4). The analyses also revealed that cocaine use is strongly correlated with both perceived risks and disapproval (see Table 3, also Figures 5 and 6). Now we turn to the task of discovering how these several sets of trends and correlations are interrelated.

Our multivariate analyses employ the same strategy as we used in studying the recent decline in marijuana use. Several of the following paragraphs describing that strategy were adapted directly from our earlier report (Bachman et al. 1988).

We computed product-moment correlations (two matrices, one based on questionnaire Form 5 data and the other based on questionnaire Form 3 data), carried out multiple regression analyses using various sets of predictors, and compared predictor sets to ascertain unique and overlapping portions of explained variance. Although this general strategy is not at all out of the ordinary, the correlation matrices are unusual because each is based on an analysis file which pools data from all 13 classes of seniors. The primary reason for pooling the data across cohorts

is that it permitted us to assign a new variable to each individual, consisting of the mean cocaine use (during the previous 12 months) reported by all seniors during the year in which the individual graduated. Thus we were able to include in each matrix the correlation between individual cocaine use and mean cocaine use among seniors for that year. We interpret that correlation as reflecting the extent to which individual variance in cocaine use over a number of years is "explainable" or "interpretable" in terms of the overall secular trend in use. Accordingly, we sometimes refer to this variable as a measure of the secular trend in cocaine use.

We initially computed two sets of correlations using the pooled data sets described above. (Both matrices are included in the appendix.) One matrix, based on Form 5, includes annual cocaine use, the set of eight "lifestyle" dimensions which appear in Table 2, an index of perceived risk of cocaine use (mean of the two perceived risk items in Table 1), and the new variable indicating the secular trend in cocaine use. The other matrix, based on Form 3, includes an index of disapproval of cocaine use (mean of the two disapproval items in Table 1), and otherwise is the same as the first matrix. Each matrix also includes items on marijuana use and attitudes, comparable to the items on cocaine, thus permitting us to extend our earlier analysis of marijuana use to include the full 13 year period 1976-1988.

We note briefly that the findings for marijuana computed over the longer 1976-88 interval replicated very closely our earlier findings based on the 1976-86 interval. We have not reported these new regression analyses for marijuana here, because they are not substantially different from the earlier ones. Because 1987 and 1988 saw a continuation of the secular trends in marijuana use and attitudes, all interrelationships involving these variables are a bit stronger for the full 13 year interval than they were for the first 11 years only. (We also found that using indexes of perceived risk and disapproval of marijuana use yielded results very similar to those based on the single items about occasional use, which were the measures chosen for our earlier analyses.) Interested readers can carry out a more detailed comparison by matching the relevant correlations in the appendix with those in the earlier paper.

Turning now to our primary focus in this paper, we must report first that the regression analyses of cocaine attitudes and use over the 1976-88 interval did not fully replicate our findings for marijuana. Specifically, we found that attitudes about cocaine did not fully "account for" secular trends in cocaine use across the 13 years. This was not altogether surprising, since we had already noted that the period of sharp increase in cocaine use during the late 1970s had not been accompanied by equally sharp changes in perceived risks or disapproval, although we did observe substantial changes in perceived availability (see Figure 2).

Since our primary focus is upon declines in use linked to increased perceived risk and disapproval, we repeated the analyses focusing on just the four graduating classes of 1985 through 1988. (The two correlation matrices based on this shorter interval are included in the appendix. The appendix also provides some commentary on the differences and similarities between results for the two intervals.) Our presentation and discussion of regression analyses will concentrate on the shorter 1985-1988 interval; later we will briefly review the findings based on longer intervals.

Table 4 presents the results of a series of regression analyses in which several sets of variables are used to predict individual seniors' self-reported annual cocaine use, based on data from the classes of 1985-88. Three predictor sets, examined separately and then in combination, are: (Set A) the eight variables presented in Table 2 ("lifestyle" dimensions, plus sex of respondent); (Set B) perceived risks of cocaine use (upper half of Table 4), or personal disapproval of cocaine use (lower half of Table 4); (Set C) mean cocaine use for all seniors during the year of graduation (secular trend in cocaine use).

The lifestyle variables in Set A account for about nine percent of the variance in annual cocaine use. This stands in sharp contrast to the 25 percent of variance in marijuana use explained by the same set of variables in our earlier analysis; however, the lower explained variance is not surprising given that cocaine involves many fewer seniors and much lower amounts of use compared with marijuana. Here again, consistent with our earlier findings (Bachman et al. 1988, 1981), the standardized regression coefficients indicate that truancy, religious commitment, and evenings out are the most important predictors (grades also are important, but overlap somewhat with the truancy measure).

Looking next at Set C, we find that the overall secular trend in cocaine use can account for only a very small amount of variance in individual use (about 0.4%). The comparable figure for the full 13 year interval from 1976-88 is scarcely larger (about 0.5%). Here, as was true for marijuana, the findings remind us that although the recent year-to-year declines are very important and interesting, such variations remain small in comparison to the wider range of variability among seniors within each year of the study.

The separate findings for Sets A and C clearly show that if one wished to predict cocaine use by a high school senior during recent years, knowing the senior's frequency of evenings out, religious involvement, and adjustment in school would be far more useful than knowing the year of graduation. But when we now look at the regression findings for Set A+C, it is clear that we can do better still with both types of predictors. The key point here is that including the lifestyle variables (Set A) as

predictors does not at all diminish the relationship with the secular trend measure. In fact, the regression coefficient for the secular trend measure is slightly increased in the presence of Set A predictors, and the variance unique to secular trend rises slightly to 0.5 percent (calculated by subtracting the R-squared value for Set A from the R-squared value for Set A+C). In other words, none of the secular trend can be "explained" by the lifestyle variables.

Turning finally to Set B, it is clear here (as was also true in our analysis of marijuana) that the single measure of perceived risk correlates more strongly with cocaine use than does the whole group of predictors in Set A, and that the single measure of disapproval correlates still more strongly.

The most important stage in our multivariate analysis is reached when we consider whether there is any relationship unique to the secular trend measure, once either of the attitude measures is included in the equation. Here, although the sizes of coefficients are smaller than in our analysis of marijuana, the pattern of findings leads to exactly the same conclusion: "...we find that in the presence of either of the attitude measures, the secular trend effect is reduced essentially to zero [based on a comparison of Set B with Set B+C]. For the sake of completeness, we note the same finding when the Set A variables are included; comparing Set A+B with Set A+B+C, we see again that when an attitude measure appears in the equation, the secular trend measure makes no addition to explained variance" (Bachman et al. 1988, p. 105).

In sum, the regression analyses of cocaine use reported in Table 4, like our earlier analyses of marijuana use, indicate that the recent downturn in use cannot be explained in terms of the lifestyle measures included in Set A, but can be explained in terms of increases in perceived risks and/or in disapproval.

The statement above is specific to the recent <u>decline</u> in cocaine use; as indicated earlier, changes in perceived risk and disapproval do not provide an adequate explanation for the <u>rise</u> in cocaine use which was observed in the late 1970s. Our initial set of regression analyses, following the same strategy but based on the matrix of correlations covering all 13 graduating classes (1976-88), produced findings in most respects quite similar to those in Table 4. As noted earlier, there is one critically important difference: when either attitude measure is included in the equation it does not remove the unique (albeit modest) contribution of the secular trend measure. (Table 5 presents a summary of these findings.)

We generated one other set of correlations and regression analyses, this time based on the nine graduating classes of 1980 through 1988.

(Table 5 includes a summary of these findings.) The interval beginning with 1980 was selected to include everything except the period of increasing cocaine use during the late 1970s. The secular trend correlations are smaller for the nine-year interval than for either the full 13-year interval or the four-year interval; this no doubt reflects the fact that during the period from 1980 through 1985 there was no appreciable secular trend in cocaine use (see Figure 2). More important, for the 1980-88 interval it is again clear that including either of the attitude measures in the equation completely removes the unique contribution of the secular trend measure.

DISCUSSION

In this paper we set out to learn more about the recent decline in cocaine use among high school seniors; in particular, we suspected that the decline was caused by recent increases in perceived risks and disapproval associated with cocaine use. We repeated the strategies and procedures used in our earlier analysis of the decline in marijuana use (Bachman et al. 1988), and the basic results replicate our earlier ones. In some other respects, however, the findings for cocaine stand in contrast to those for marijuana; yet several of these differences actually tend to strengthen our general conclusions about factors underlying trends in drug use.

For example, seniors have been far more likely to view cocaine use as risky, and as something to be disapproved, than has been the case for marijuana. Consistent with those differences, actual use of cocaine among seniors has been a great deal lower than marijuana use (and, given the resulting lower variance, our correlations involving cocaine use tend to be smaller than those involving marijuana use). We find it all the more important, then, that in spite of large differences in attitudes, usage rates, and size of correlations, the present findings linking attitude changes to the decline in cocaine use have so much in common with our earlier findings about the decline in marijuana use.

Another significant difference between marijuana and cocaine involves seniors' estimates of how easy it would be to get each drug. Marijuana consistently has been viewed as readily available by large majorities, whereas the mean ratings of cocaine availability have been a good deal lower. Thus availability (or at least perceived availability) may have been much more of a limiting factor in the case of cocaine. Although perceived availability of cocaine use rose appreciably during the late 1970s, when use was also rising, it is important to recall that during the recent decline in cocaine use there was no decline in perceived

availability. So our findings for cocaine, like those for marijuana, show that use can decline without any corresponding decline in perceived supply. (It is, however, quite possible that the earlier rise in perceived availability may have facilitated the rise in cocaine use.)

One other distinction between the findings for marijuana and cocaine, particularly important for our present conclusions, involves the shape and timing of the secular trends in use. Although use of both drugs was increasing up to 1978, the trends were distinctly different after that. Marijuana use declined fairly steadily from 1979 onward, so that by 1988 annual usage rates (either mean use or percent reporting any use) were about half as large as for the class of 1979. For cocaine, however, the first clear drop did not occur until after the 1986 survey, and was so steep that only two years later annual usage was cut by about 40 percent.

We would find it hard to argue plausibly that such different secular trends in the use of these two drugs could have been caused by some general trend toward young people becoming more "conservative" or less "trouble-prone" in recent years. (Moreover, such an argument would be further strained to accommodate still other trend patterns for other drugs.) Changes in drug-specific factors, on the other hand, clearly correspond to the declines in both marijuana use and cocaine use. As displayed in Figure 1, perceived risks and disapproval regarding marijuana rose steadily from 1978 or 1979 onward; in the case of cocaine, perceived risks and disapproval rose sharply after 1986. Both the bivariate and multivariate analyses strongly suggest that if these changes in attitudes about each drug had not occurred, then we would not have observed any recent declines in use.

We have not attempted in this paper to formulate an overall theory of drug use, nor have we undertaken the (slightly) more limited task of formulating a theory of secular trends in drug use (but see Johnston in press for an initial effort in the latter direction). The present findings do, however, prompt two observations which would seem appropriate to incorporate into any general theory of drug use and trends in such use. First, it seems necessary to include drug-specific factors in any complete explication of drug use. Broad theories of deviant or "problem" behavior are valuable and highly relevant to the use of drugs, but they cannot provide a complete explanation—particularly since different drugs have shown such disparate patterns of secular trends. Second, it is not necessarily the case that those factors which play a major role in the decline in use of a drug are those which contributed most substantially to an initial increase in use. To the contrary, we suspect that the factors causing historical rises and declines in a drug's use are seldom the same. With regard to marijuana and cocaine, for example, changes in availability undoubtedly played a more important role in the spread of each drug's use than in the decline.

Our emphasis on drug-specific factors does not preclude some very useful generalizations across drugs; indeed, the central thesis of this paper—that increases in perceived risks and disapproval underlie the recent downturn in use of cocaine—was a generalization from the earlier findings on marijuana.

Now let us consider why these attitudes about marijuana and cocaine changed. We have argued on several occasions that changes in the social environment, primarily changes in information about marijuana, led to a secular trend in perceptions of the risks of marijuana, which led in turn to secular trends in disapproval and in actual marijuana use (e.g., Bachman et al. 1988; Johnston 1985). In particular, we think two kinds of social change were involved, no doubt synergistically: (a) there was increased research and more credible reporting on the physical and psychological consequences of marijuana use, and (b) long-term heavy marijuana use became common enough that most high school students knew classmates who exhibited some of these negative consequences of use.

In the case of cocaine also, we believe that shifts in attitudes resulted from changes in the social environment, primarily changes in information specific to cocaine. These shifts occurred much more abruptly than those involving marijuana, and we think that is because the new information about cocaine arrived in such a dramatic fashion. In May of 1986 Len Bias, a college basketball star who had just made sports headlines as the first-round draft pick of the Boston Celtics, died as a result of cocaine use. The extensive press coverage of this tragedy included the assertion that Bias had never used cocaine prior to the occasion which resulted in his death. Although that was later discovered to be incorrect, the early publicity left a strong impression that even trying cocaine could be very dangerous. Within several weeks another sports star, professional football player Don Rogers, also died as a result of cocaine use. Although these two athletes were not high school seniors, they were only a few years older than the respondents in our study, they were young men in prime physical condition, and they had already achieved a high degree of success and fame. In other words, they were the kinds of individuals with whom many high school students could identify. We thus suspect that for many young people these widely reported and discussed events had at least some of the impact that would have resulted from a classmate's death due to cocaine. In any case, the Bias and Rogers deaths, coming one right after the other, provided a focal point for extensive media coverage of cocaine use and its risks (including death rate statistics, other physical effects, addictive potential, and the like), and all of this information seemed likely to generate higher levels of public concern about the drug. The findings reported here suggest that is just what happened.

CONCLUSIONS

In this paper we have concentrated on one important part of the drug use picture. We have focused on overall secular trends, not on intra-individual changes. In particular, our focus has been on recent substantial declines in drug use. The present findings regarding cocaine, combined with the earlier findings concerning marijuana, support the following observations and conclusions:

1. The recent declines in cocaine use or in marijuana use are not attributable to any overall shifts in a number of general lifestyle factors because (a) these lifestyle factors have not themselves trended very much in recent years, (b) controlling for these lifestyle factors (in multivariate regression analyses) does not reduce the size of the secular trend in either cocaine use or marijuana use, and (c) events which differ this much in timing and rate of change are unlikely to have identical causes.

2. It appears that drug-specific factors were responsible for each of the declines in drug use. In particular, increases in perceived risk and disapproval associated with each drug seem to have prompted the declines in use.

3. The factors involved in declining use of a drug are not necessarily the same as those involved in (earlier) increases in use. Although the present research shows that perceived risk and disapproval act to limit drug use, it is obvious that other factors such as awareness and availability also place outer bounds on drug use—and changes in these latter factors very likely contributed to the increases in use of various illicit drugs.

4. Finally, with respect to prevention, the present findings about cocaine reinforce our earlier conclusions based on the analysis of marijuana use. It appears that large proportions of young people do pay attention to new information about drugs, especially risks and consequences; and such information, presented in a realistic and credible fashion, plays a vital part in reducing the demand for a drug. The evidence available thus far clearly indicates that such demand reduction has been the key to controlling the epidemics of marijuana use and cocaine use.

Table 1

Measures of Cocaine Use, Perceived Risk, and Disapproval

Question Text	Response Alternatives
Cocaine Use (Forms 1–5)	
On how many occasions (if any) have you used cocaine (sometimes called "coke") in ...	1. 0 Occasions 2. 1–2 Occasions 3. 3–5 Occasions 4. 6–9 Occasions 5. 10–19 Occasions 6. 20–39 Occasions 7. 40 or More
...in your lifetime?	
...during the last 12 months?	
...during the last 30 days?	
Perceived Risk (Form 5 Only)[a]	
The next questions ask for your opinions on the effects of using certain drugs and other substances. How much do you think people risk harming themselves (physically or in other ways), if they...	1. No Risk 2. Slight Risk 3. Moderate Risk 4. Great Risk 5. Can't Say, Drug Unfamiliar
Try cocaine once or twice	
Take cocaine regularly	
Disapproval (Form 3 Only)[b]	
Individuals differ in whether or not they disapprove of people doing certain things. Do YOU disapprove of people (who are 18 or older) doing each of the following?	1. Don't Disapprove 2. Disapprove 3. Strongly Disapprove
Trying cocaine once or twice	
Taking cocaine regularly	

[a]An index of perceived risk was computed as the mean of these two items (no missing data allowed). "Can't say" responses were treated as missing data.

[b]An index of disapproval was computed as the mean of these two items (no missing data allowed).

Table 2

Trends in Cocaine Annual Use Means (1–7 Scale) for Each Level of a Set of Lifestyle Factors:
High School Seniors, 1976–1988

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
R's Sex													
Male	1.139	1.183	1.221	1.315	1.315	1.301	1.274	1.265	1.324	1.364	1.346	1.275	1.214
Percent of Cases in Category	*49.7*	*48.3*	*48.7*	*48.5*	*49.0*	*49.4*	*50.0*	*49.4*	*49.1*	*48.7*	*48.0*	*48.6*	*48.4*
Female	1.078	1.094	1.122	1.197	1.207	1.232	1.211	1.192	1.203	1.267	1.256	1.205	1.149
Percent of Cases in Category	*50.3*	*51.7*	*51.3*	*51.5*	*51.0*	*50.6*	*50.0*	*50.6*	*50.9*	*51.3*	*52.0*	*51.4*	*51.6*
r	–0.058	–0.073	–0.074	–0.069	–0.063	–0.039	–0.038	–0.046	–0.067	–0.049	–0.046	–0.041	–0.042
H.S. Grade													
C or lower	1.194	1.250	1.295	1.449	1.382	1.407	1.390	1.379	1.369	1.477	1.500	1.407	1.350
Percent of Cases in Category	*13.1*	*13.4*	*13.8*	*13.2*	*14.3*	*13.3*	*14.8*	*15.3*	*15.2*	*14.3*	*15.3*	*14.6*	*14.3*
C+/B	1.130	1.160	1.204	1.281	1.320	1.328	1.290	1.259	1.330	1.398	1.372	1.274	1.199
Percent of Cases in Category	*27.5*	*28.0*	*28.6*	*28.4*	*27.0*	*28.1*	*28.5*	*29.5*	*29.4*	*28.8*	*29.1*	*29.0*	*28.9*
B/B+	1.085	1.114	1.130	1.217	1.216	1.239	1.205	1.189	1.213	1.255	1.241	1.207	1.147
Percent of Cases in Category	*39.9*	*39.4*	*38.8*	*38.0*	*38.7*	*38.6*	*37.2*	*36.6*	*36.7*	*37.3*	*37.2*	*37.5*	*36.6*
A-/A	1.053	1.055	1.079	1.131	1.139	1.140	1.110	1.106	1.148	1.149	1.131	1.109	1.081
Percent of Cases in Category	*19.5*	*19.2*	*18.8*	*20.4*	*20.0*	*20.1*	*19.4*	*18.6*	*18.7*	*19.5*	*18.4*	*18.9*	*20.3*
r	–0.082	–0.095	–0.102	–0.108	–0.098	–0.096	–0.107	–0.106	–0.088	–0.112	–0.122	–0.103	–0.103
Truancy Composite													
Code 10 (none)	1.038	1.047	1.068	1.096	1.087	1.112	1.109	1.107	1.120	1.157	1.142	1.101	1.082
Percent of Cases in Category	*50.8*	*46.4*	*51.3*	*51.0*	*50.3*	*51.3*	*54.4*	*56.2*	*57.9*	*55.6*	*56.0*	*52.8*	*53.6*
Code 15(low)	1.082	1.092	1.123	1.176	1.211	1.230	1.223	1.210	1.274	1.275	1.265	1.200	1.140
Percent of Cases in Category	*17.9*	*18.7*	*17.8*	*16.7*	*17.6*	*17.5*	*17.3*	*16.5*	*16.8*	*16.8*	*17.0*	*18.1*	*17.9*
Code 20	1.132	1.149	1.226	1.341	1.288	1.358	1.358	1.276	1.403	1.412	1.404	1.291	1.242
Percent of Cases in Category	*10.3*	*12.5*	*10.8*	*11.6*	*11.1*	*11.1*	*10.5*	9.9	9.3	*10.2*	*10.4*	*11.1*	*11.0*
Code 25	1.226	1.177	1.252	1.441	1.503	1.443	1.366	1.415	1.465	1.568	1.561	1.453	1.354
Percent of Cases in Category	*6.6*	*7.8*	*6.6*	*6.8*	*6.9*	*6.4*	*6.4*	*6.1*	*5.8*	*5.9*	*5.9*	*6.4*	*5.9*
Code 30–65 (high)	1.316	1.434	1.514	1.744	1.792	1.730	1.731	1.703	1.800	1.917	1.929	1.777	1.543
Percent of Cases in Category	*14.3*	*14.7*	*13.4*	*13.9*	*14.1*	*13.8*	*11.5*	*11.3*	*10.2*	*11.4*	*10.6*	*11.6*	*11.7*
r	0.137	0.147	0.149	0.190	0.281	0.237	0.233	0.234	0.234	0.242	0.249	0.242	0.195

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Table 2 (continued)

Trends in Cocaine Annual Use Means (1–7 Scale) for Each Level of a Set of Lifestyle Factors:
High School Seniors, 1976–1988

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Hours Worked/Week													
0 Hours	1.082	1.111	1.114	1.184	1.164	1.186	1.162	1.166	1.195	1.226	1.245	1.193	1.160
Percent of Cases in Category	*25.8*	*23.6*	*21.9*	*19.8*	*19.6*	*21.4*	*23.4*	*24.6*	*24.9*	*24.5*	*23.2*	*22.5*	*21.9*
1–10	1.097	1.097	1.130	1.189	1.206	1.212	1.179	1.153	1.176	1.213	1.186	1.143	1.136
Percent of Cases in Category	*21.5*	*19.9*	*19.1*	*18.7*	*18.5*	*20.1*	*20.9*	*21.1*	*20.1*	*19.9*	*19.3*	*18.8*	*18.6*
11–20	1.098	1.122	1.148	1.221	1.254	1.273	1.249	1.231	1.247	1.310	1.302	1.230	1.163
Percent of Cases in Category	*23.5*	*24.4*	*25.3*	*26.5*	*28.6*	*27.6*	*27.1*	*26.7*	*25.8*	*25.9*	*27.3*	*27.3*	*28.5*
21–30	1.124	1.161	1.203	1.314	1.314	1.339	1.314	1.293	1.345	1.421	1.360	1.303	1.230
Percent of Cases in Category	*18.4*	*20.5*	*21.7*	*23.5*	*22.8*	*21.1*	*19.9*	*18.7*	*19.7*	*20.7*	*20.5*	*22.2*	*22.1*
31 or more	1.152	1.214	1.278	1.374	1.366	1.344	1.343	1.348	1.428	1.452	1.472	1.394	1.233
Percent of Cases in Category	*10.8*	*11.7*	*12.0*	*11.6*	*10.5*	9.7	8.7	8.9	9.4	9.0	9.7	9.2	8.9
r	0.040	0.053	0.074	0.074	0.077	0.068	0.078	0.079	0.084	0.085	0.074	0.074	0.038
Total Weekly Income													
$0	1.072	1.098	1.076	1.137	1.110	1.129	1.117	1.112	1.131	1.134	1.137	1.103	1.151
Percent of Cases in Category	*6.4*	*6.5*	*5.7*	*5.0*	*5.2*	*5.5*	*5.6*	*5.8*	*5.4*	*5.2*	*4.5*	*4.5*	*4.3*
$1–25	1.075	1.094	1.114	1.175	1.166	1.173	1.149	1.141	1.148	1.165	1.156	1.124	1.098
Percent of Cases in Category	*42.1*	*36.7*	*31.8*	*28.9*	*26.6*	*28.9*	*29.7*	*30.8*	*29.2*	*28.1*	*25.3*	*23.3*	*22.5*
$17–60	1.103	1.116	1.152	1.217	1.226	1.256	1.205	1.177	1.210	1.255	1.250	1.190	1.131
Percent of Cases in Category	*32.2*	*33.0*	*31.7*	*29.9*	*29.7*	*27.5*	*25.0*	*23.7*	*23.9*	*23.8*	*23.9*	*23.0*	*23.8*
$42+	1.181	1.227	1.247	1.350	1.351	1.359	1.339	1.321	1.374	1.451	1.410	1.325	1.240
Percent of Cases in Category	*19.2*	*23.9*	*30.8*	*36.1*	*38.5*	*38.1*	*39.7*	*39.6*	*41.6*	*42.9*	*46.2*	*49.3*	*49.4*
r	0.071	0.077	0.085	0.088	0.098	0.093	0.102	0.103	0.111	0.127	0.113	0.101	0.073
Religious Commitment Index[a]													
10–15 (low)	1.233	1.321	1.355	1.546	1.500	1.500	1.390	1.444	1.540	1.550	1.506	1.401	1.352
Percent of Cases in Category	*14.3*	*12.9*	*12.5*	*12.0*	*11.5*	*12.6*	*12.8*	*12.6*	*13.5*	*15.1*	*16.0*	*17.2*	*15.9*
20–25	1.156	1.181	1.224	1.350	1.372	1.357	1.343	1.311	1.345	1.412	1.392	1.295	1.229
Percent of Cases in Category	*30.6*	*32.6*	*32.9*	*31.6*	*30.1*	*31.3*	*33.5*	*33.2*	*32.9*	*33.9*	*34.3*	*36.1*	*35.7*
30–35	1.062	1.086	1.115	1.175	1.184	1.211	1.173	1.165	1.188	1.219	1.217	1.170	1.114
Percent of Cases in Category	*34.8*	*35.0*	*35.1*	*35.3*	*35.0*	*34.8*	*34.6*	*33.9*	*33.2*	*32.4*	*32.4*	*30.8*	*31.7*
40 (high)	1.022	1.029	1.046	1.065	1.089	1.079	1.084	1.053	1.074	1.080	1.077	1.063	1.038
Percent of Cases in Category	*20.3*	*19.4*	*19.4*	*21.0*	*23.4*	*21.3*	*19.0*	*20.3*	*20.4*	*18.5*	*17.4*	*15.9*	*16.7*
r	–0.134	–0.145	–0.143	–0.176	–0.163	–0.152	–0.132	–0.159	–0.162	–0.159	–0.146	–0.127	–0.132

Table 2 (continued)

Trends in Cocaine Annual Use Means (1–7 Scale) for Each Level of a Set of Lifestyle Factors
High School Seniors, 1976–1988

	1976	1977	197o	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Political Belief													
Very Conservative	1.087	1.156	1.136	1.173	1.226	1.203	1.166	1.216	1.249	1.223	1.232	1.249	1.119
Percent of Cases in Category	*2.4*	*3.0*	*2.9*	*3.1*	*3.3*	*3.3*	*3.2*	*2.9*	*3.4*	*3.5*	*3.6*	*3.0*	*3.6*
Conservative	1.059	1.089	1.100	1.171	1.210	1.231	1.203	1.164	1.189	1.224	1.252	1.173	1.117
Percent of Cases in Category	*11.6*	*12.8*	*13.1*	*13.4*	*14.2*	*15.4*	*14.1*	*12.5*	*13.3*	*14.9*	*13.4*	*13.0*	*13.6*
Moderate	1.075	1.089	1.123	1.210	1.215	1.221	1.196	1.197	1.227	1.250	1.255	1.208	1.164
Percent of Cases in Category	*33.7*	*33.5*	*32.1*	*31.5*	*33.1*	*32.9*	*31.1*	*31.7*	*31.9*	*30.9*	*30.9*	*30.0*	*31.4*
Liberal	1.139	1.187	1.234	1.368	1.333	1.414	1.338	1.289	1.308	1.389	1.347	1.287	1.194
Percent of Cases in Category	*19.9*	*18.8*	*18.1*	*16.8*	*15.8*	*14.7*	*14.7*	*14.2*	*14.6*	*16.0*	*15.7*	*16.6*	*15.7*
Very Liberal	1.245	1.401	1.418	1.503	1.495	1.505	1.409	1.356	1.429	1.458	1.507	1.445	1.311
Percent of Cases in Category	*4.4*	*3.8*	*3.6*	*3.5*	*3.0*	*3.0*	*2.9*	*3.0*	*3.0*	*3.1*	*3.5*	*3.8*	*4.0*
Radical	1.431	1.508	1.573	1.760	1.799	1.721	1.709	1.647	1.734	1.898	1.767	1.562	1.475
Percent of Cases in Category	*2.7*	*2.3*	*2.5*	*3.0*	*2.9*	*2.9*	*2.8*	*2.9*	*2.8*	*2.9*	*2.8*	*2.9*	*2.6*
None of the above, or don't know	1.084	1.108	1.140	1.196	1.205	1.195	1.206	1.204	1.253	1.304	1.278	1.210	1.181
Percent of Cases in Category	*25.2*	*25.9*	*27.7*	*28.7*	*27.6*	*27.7*	*31.1*	*32.7*	*31.0*	*28.6*	*30.1*	*30.7*	*29.1*
r (excluding last category)	0.123	0.124	0.136	0.140	0.120	0.117	0.117	0.105	0.101	0.121	0.096	0.088	0.085
Evenings Out per Week													
1 or fewer	1.026	1.042	1.051	1.085	1.084	1.090	1.083	1.077	1.096	1.122	1.123	1.099	1.079
Percent of Cases in Category	*20.8*	*20.7*	*19.3*	*19.6*	*21.0*	*22.0*	*22.6*	*22.0*	*22.9*	*21.3*	*22.2*	*21.3*	*21.0*
2–3	1.068	1.095	1.111	1.176	1.193	1.218	1.200	1.193	1.216	1.236	1.220	1.199	1.138
Percent of Cases in Category	*52.3*	*51.7*	*54.7*	*53.9*	*56.0*	*56.6*	*55.9*	*55.3*	*56.0*	*56.4*	*55.3*	*56.2*	*55.8*
4–5	1.188	1.212	1.298	1.408	1.463	1.469	1.427	1.368	1.443	1.545	1.529	1.405	1.306
Percent of Cases in Category	*17.8*	*18.5*	*17.8*	*17.9*	*16.3*	*15.2*	*15.2*	*16.4*	*14.7*	*15.2*	*15.8*	*15.8*	*16.4*
6–7	1.329	1.382	1.507	1.750	1.749	1.754	1.701	1.567	1.727	1.888	1.933	1.604	1.517
Percent of Cases in Category	*9.0*	*9.1*	*8.2*	*8.5*	*6.7*	*6.2*	*6.3*	*6.4*	*6.4*	*7.1*	*6.7*	*6.7*	*6.8*
r	0.163	0.156	0.187	0.207	0.205	0.190	0.196	0.162	0.177	0.201	0.207	0.153	0.144

[a] The religious commitment index is a mean of two items: How often do you attend religious services? (1=Never...4=About once a week or more); How important is religion in your life? (1=Not important...4=Very Important). The product-moment correlation between these two items is approximately .55.

Table 3

Trends in Cocaine Annual Use Means (1–7 Scale) for Each Level of Perceived Risk and Disapproval of Use:
High School Seniors, 1976–1988

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Perceived Risk of Trying Cocaine													
No Risk	1.775	1.867	2.014	2.405	2.316	2.157	2.256	2.101	2.160	2.612	2.278	2.153	2.618
Percent of Cases in Category	*9.9*	*11.3*	*14.1*	*15.8*	*14.5*	*14.5*	*14.6*	*12.9*	*11.4*	*11.5*	*9.4*	*6.0*	*3.4*
Slight Risk	1.181	1.202	1.163	1.266	1.305	1.339	1.274	1.319	1.416	1.462	1.503	1.515	1.531
Percent of Cases in Category	*16.9*	*20.5*	*21.7*	*21.8*	*24.6*	*22.6*	*21.8*	*24.4*	*22.8*	*24.0*	*24.2*	*17.6*	*15.6*
Moderate Risk	1.026	1.026	1.036	1.029	1.036	1.085	1.087	1.061	1.105	1.117	1.131	1.113	1.145
Percent of Cases in Category	*28.9*	*27.6*	*27.2*	*28.0*	*26.7*	*28.2*	*28.1*	*27.2*	*27.6*	*27.6*	*30.9*	*25.9*	*27.1*
Great Risk	1.016	1.007	1.010	1.009	1.025	1.022	1.022	1.016	1.029	1.035	1.029	1.055	1.023
Percent of Cases in Category	*44.3*	*40.6*	*37.0*	*34.5*	*34.3*	*34.7*	*35.5*	*35.5*	*38.2*	*36.8*	*35.5*	*50.5*	*53.9*
r	–0.324	–0.370	–0.396	–0.436	–0.421	–0.382	–0.405	–0.379	–0.360	–0.410	–0.356	–0.319	–0.342
Perceived Risk of Regular Cocaine Use													
No Risk	2.839	2.675	3.138	4.170	3.506	3.362	3.936	3.213	2.731	3.982	3.177	2.664	3.933
Percent of Cases in Category	*1.3*	*2.1*	*2.4*	*2.7*	*1.6*	*2.2*	*1.7*	*1.3*	*1.0*	*1.2*	*0.6*	*0.2*	*0.3*
Slight Risk	1.730	1.871	2.041	2.423	2.606	2.100	2.307	2.447	2.750	3.258	2.638	2.692	2.657
Percent of Cases in Category	*4.2*	*5.2*	*5.8*	*6.2*	*5.8*	*5.4*	*5.3*	*4.2*	*3.5*	*2.9*	*2.1*	*1.0*	*0.9*
Moderate Risk	1.308	1.331	1.352	1.521	1.595	1.701	1.622	1.559	1.843	2.028	1.899	1.928	2.306
Percent of Cases in Category	*11.9*	*14.4*	*15.7*	*14.2*	*15.9*	*14.8*	*13.2*	*13.3*	*10.6*	*10.5*	*9.0*	*5.0*	*4.2*
Great Risk	1.037	1.028	1.033	1.055	1.072	1.080	1.093	1.096	1.117	1.154	1.187	1.160	1.118
Percent of Cases in Category	*82.6*	*78.3*	*76.1*	*76.8*	*76.7*	*77.7*	*79.8*	*81.2*	*84.9*	*85.4*	*88.3*	*93.8*	*94.6*
r	–0.417	–0.487	–0.541	–0.603	–0.538	–0.482	–0.518	–0.458	–0.434	–0.505	–0.338	–0.290	–0.376

Table 3 (continued)

Trends in Cocaine Annual Use Means (1–7 Scale) for Each Level of Perceived Risk and Disapproval of Use:
High School Seniors, 1976–1988

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Disapproval of Trying Cocaine													
Don't Disapprove	1.495	1.676	1.757	2.096	2.007	2.093	2.056	1.980	2.230	2.307	2.327	2.416	2.286
Percent of Cases in Category	*15.5*	*19.0*	*21.7*	*24.0*	*21.9*	*23.9*	*21.4*	*21.3*	*18.4*	*19.2*	*18.0*	*11.4*	*8.6*
Disapprove	1.060	1.048	1.041	1.051	1.056	1.057	1.063	1.071	1.137	1.145	1.206	1.234	1.235
Percent of Cases in Category	*20.4*	*20.8*	*19.5*	*20.0*	*18.3*	*19.0*	*17.1*	*18.2*	*17.2*	*17.2*	*17.2*	*16.6*	*15.1*
Strongly Disapprove	1.006	1.003	1.009	1.017	1.008	1.005	1.018	1.016	1.013	1.022	1.022	1.042	1.020
Percent of Cases in Category	*64.1*	*60.2*	*58.8*	*56.0*	*59.8*	*57.1*	*61.5*	*60.6*	*64.4*	*63.6*	*64.8*	*72.0*	*76.3*
r	–0.347	–0.379	–0.397	–0.455	–0.475	–0.470	–0.454	–0.438	–0.487	–0.490	–0.474	–0.466	–0.468
Disapproval of Regular Cocaine Use													
Don't Disapprove	2.058	2.279	2.422	3.092	2.899	3.060	3.143	2.975	3.453	3.530	4.240	3.398	3.328
Percent of Cases in Category	*3.7*	*5.3*	*5.9*	*7.6*	*6.7*	*7.5*	*6.2*	*4.9*	*3.7*	*4.2*	*3.2*	*1.7*	*1.3*
Disapprove	1.217	1.254	1.358	1.423	1.487	1.514	1.486	1.558	1.740	1.799	1.802	1.983	1.672
Percent of Cases in Category	*17.6*	*18.4*	*18.4*	*19.1*	*17.6*	*17.2*	*15.6*	*15.2*	*14.9*	*13.1*	*13.9*	*10.4*	*9.2*
Strongly Disapprove	1.020	1.034	1.036	1.058	1.030	1.042	1.055	1.062	1.072	1.097	1.089	1.099	1.076
Percent of Cases in Category	*78.7*	*76.3*	*75.7*	*73.3*	*75.7*	*75.3*	*78.2*	*79.9*	*81.4*	*82.7*	*82.9*	*87.9*	*89.5*
r	–0.399	–0.413	–0.454	–0.543	–0.577	–0.572	–0.558	–0.507	–0.531	–0.538	–0.564	–0.457	–0.415

Table 4

Multiple Regression Analyses Predicting Annual Cocaine Use (1–7 Scale) for A) Lifestyle Variables, B) Attitudes about Cocaine, and C) Mean Cocaine Use Per Year: High School Seniors, Classes of 1985–1988, Combined

(Note: Entries in the first column are product-moment correlation coefficients (r); entries in the bottom rows are multiple correlation coefficients (R and R^2), adjusted for degrees of freedom; all other table entries are standardized regression coefficients.)

Data from Questionnaire Form 5

Predictor	r	A.	B.	C.	A.+B.	A.+C.	B.+C.	A.+B.+C.
A. Lifestyle Variables								
Grades	-0.130	-0.069			-0.042	-0.068		-0.042
Truancy	0.212	0.142			0.106	0.143		0.106
Hours Worked Per Week	0.099	0.047			0.035	0.043		0.035
Average Weekly Income	0.103	0.023			0.020*	0.030		0.019*
Religious Commitment	-0.141	-0.081			-0.034	-0.083		-0.034
Political Beliefs	0.111	0.074			0.047	0.074		0.047
Evenings Out per Week	0.179	0.123			0.078	0.122		0.078
Sex (M=1, F=2)	-0.040	0.007*			0.013*	0.008*		0.013*
B. Perceived Risk of Cocaine Use (index)	-0.427		-0.427		-0.375		-0.430	-0.375
C. Mean Cocaine Use per Year	0.064			0.064		0.071	-0.016*	-0.001*
R		0.295	0.427	0.063	0.465	0.303	0.427	0.465
R^2		0.087	0.182	0.004	0.216	0.092	0.182	0.216

Data from Questionnaire Form 3

Predictor	r	A.	B.	C.	A.+B.	A.+C.	B.+C.	A.+B.+C.
A. Lifestyle Variables								
Grades	-0.124	-0.067			-0.035	-0.067		-0.035
Truancy	0.235	0.180			0.098	0.181		0.098
Hours Worked Per Week	0.067	0.008*			0.003*	0.005*		0.003*
Average Weekly Income	0.090	0.034			0.027	0.039		0.028
Religious Commitment	-0.148	-0.099			-0.023	-0.101		-0.023
Political Beliefs	0.067	0.029			-0.011*	0.028		-0.011*
Evenings Out per Week	0.161	0.107			0.051	0.106		0.051
Sex (M=1, F=2)	-0.032	0.011*			0.007*	0.011*		0.007*
B. Disapproval of Cocaine Use (index)	-0.534		-0.534		-0.493		-0.535	-0.493
C. Mean Cocaine Use per Year	0.061			0.061		0.068	-0.008*	0.002*
R		0.295	0.534	0.060	0.551	0.303	0.534	0.551
R^2		0.087	0.285	0.004	0.304	0.092	0.285	0.304

* $p > .05$

Table 5

Comparison of Regression Analysis Based on Three Intervals: 1985–1988, 1980–1988, and 1976–1988.

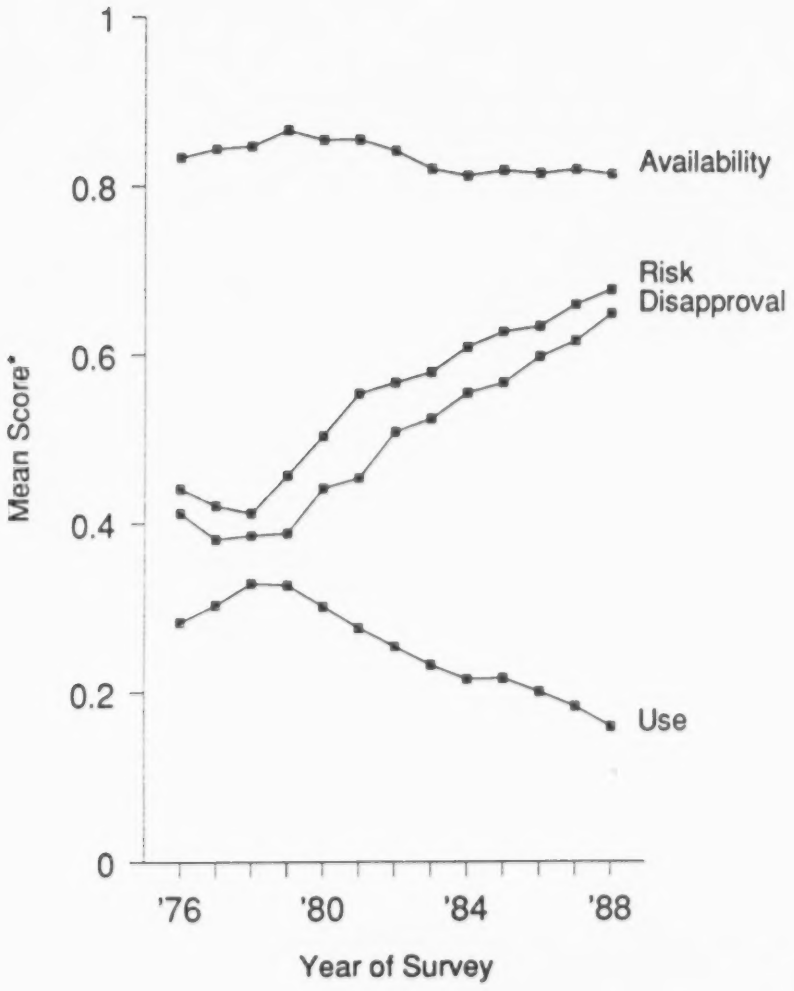
(Note: Entries are total explained variance (Multiple – R^2), adjusted for degrees of freedom. Columns A, B, C, etc., are consistent with those in Table 4.)

Data from Questionnaire Form 5

Years	A.	B.	C.	A.+B.	A.+C.	B.+C.	A.+B.+C.
1985–1988	0.087	0.182	0.004	0.216	0.092	0.182	0.216
1980–1988	0.095	0.199	0.002	0.231	0.097	0.199	0.231
1976–1988	0.097	0.203	0.005	0.233	0.103	0.206	0.236

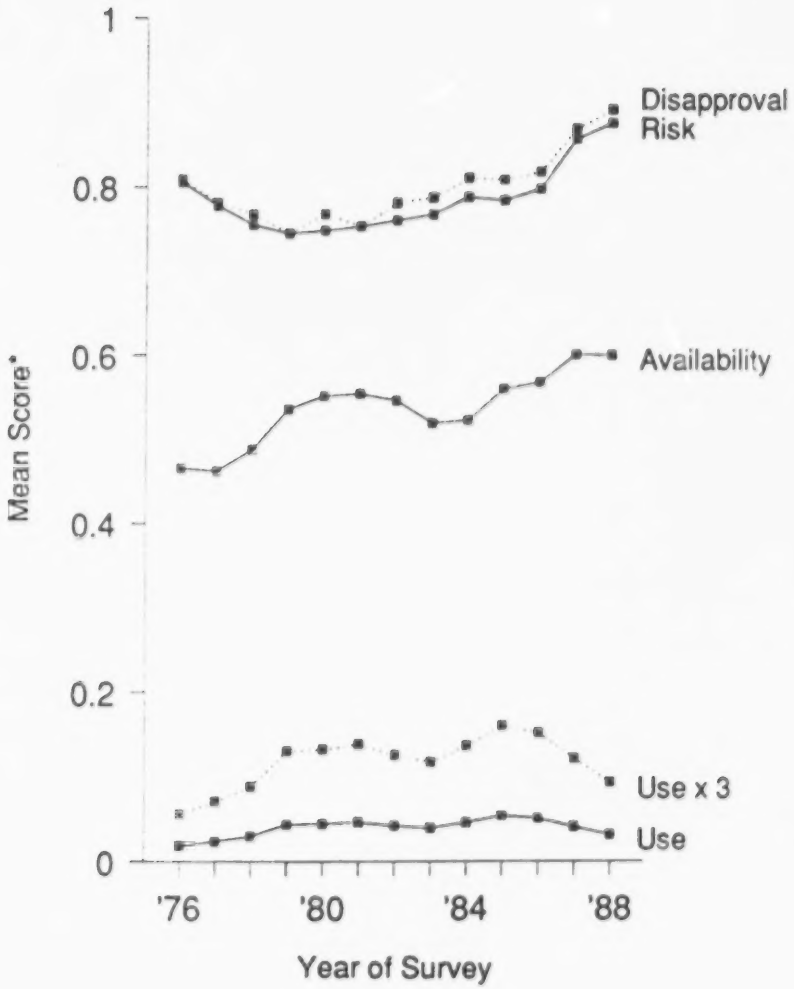
Data from Questionnaire Form 3

Years	A.	B.	C.	A.+B.	A.+C.	B.+C.	A.+B.+C.
1985–1988	0.087	0.285	0.004	0.304	0.092	0.285	0.304
1980–1988	0.100	0.282	0.002	0.299	0.102	0.282	0.299
1976–1988	0.094	0.255	0.005	0.271	0.100	0.259	0.275



*All items were scaled with the minimum possible score set equal to zero and the maximum possible score set equal to 1.

Figure 1: Trends in Annual Marijuana Use, Perceived Availability, Perceived Risk, and Disapproval. High School Seniors, 1976-1988.



*All items were scaled with the minimum possible score set equal to zero and the maximum possible score set equal to 1.

Figure 2: Trends in Annual Cocaine Use, Perceived Availability, Perceived Risk, and Disapproval. High School Seniors, 1976-1988.

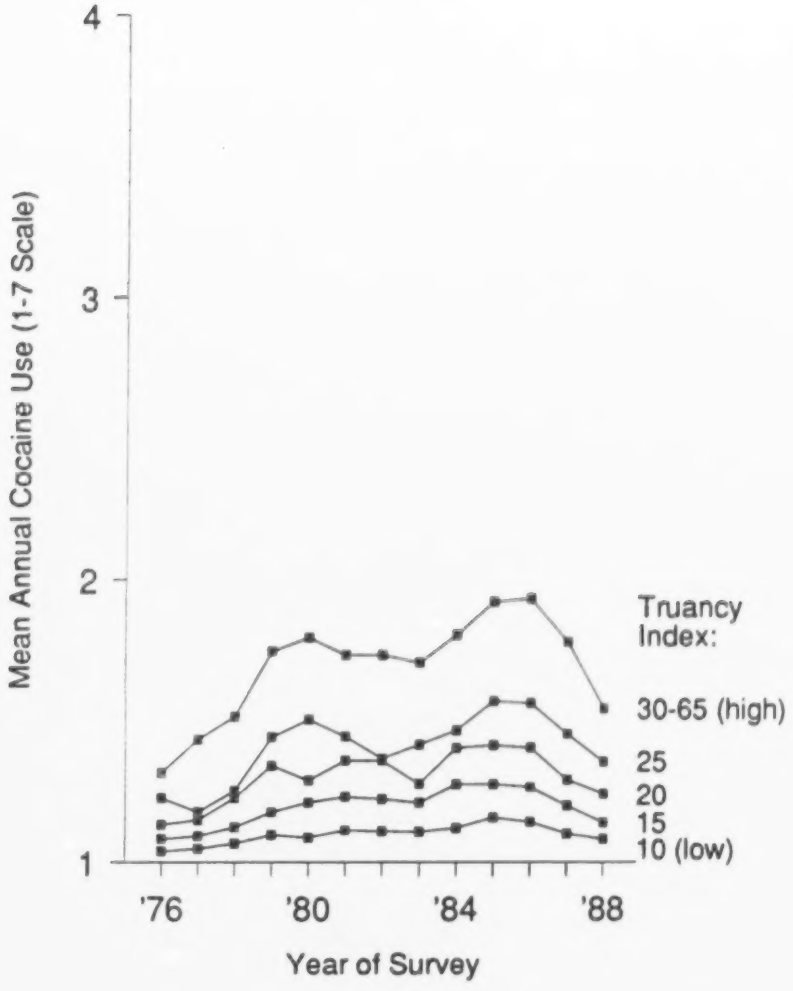


Figure 3: Trends in Annual Cocaine Use Shown Separately for Five Levels of Truancy. High School Seniors, 1976-1988.

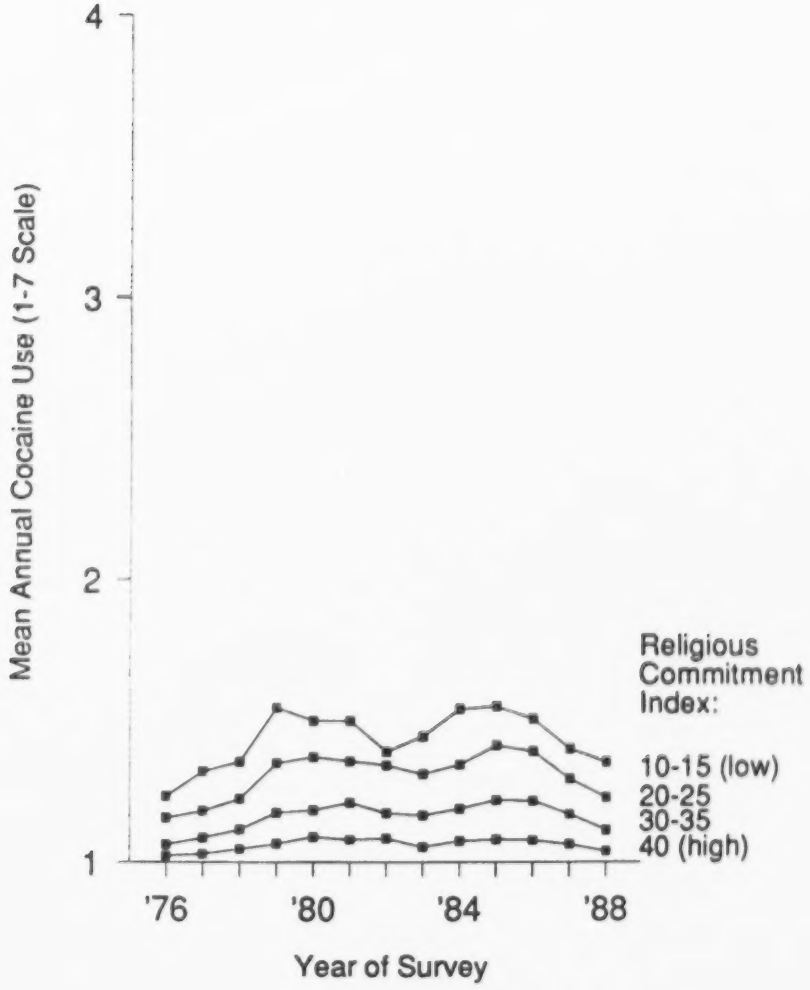


Figure 4: Trends in Annual Cocaine Use Shown Separately for Four Levels of Religious Commitment. High School Seniors, 1976-1988.

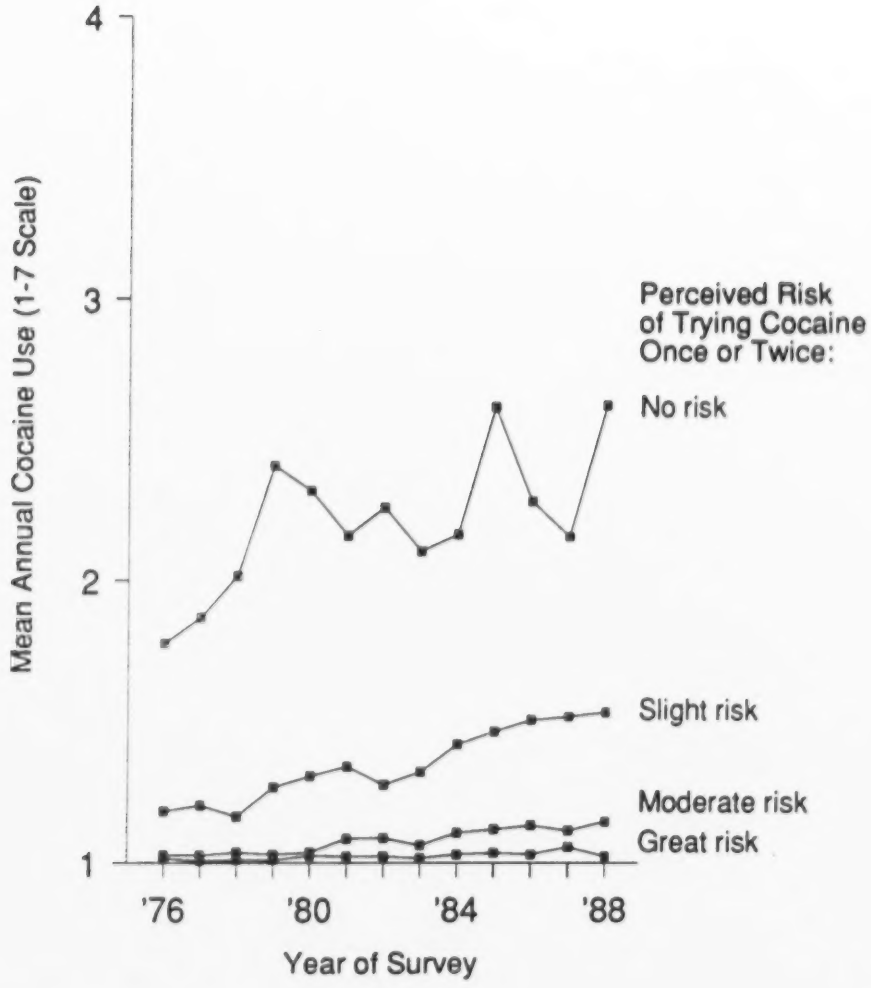


Figure 5: Trends in Annual Cocaine Use Shown Separately for Four Levels of Perceived Risk of Trying Cocaine. High School Seniors, 1976-1988.

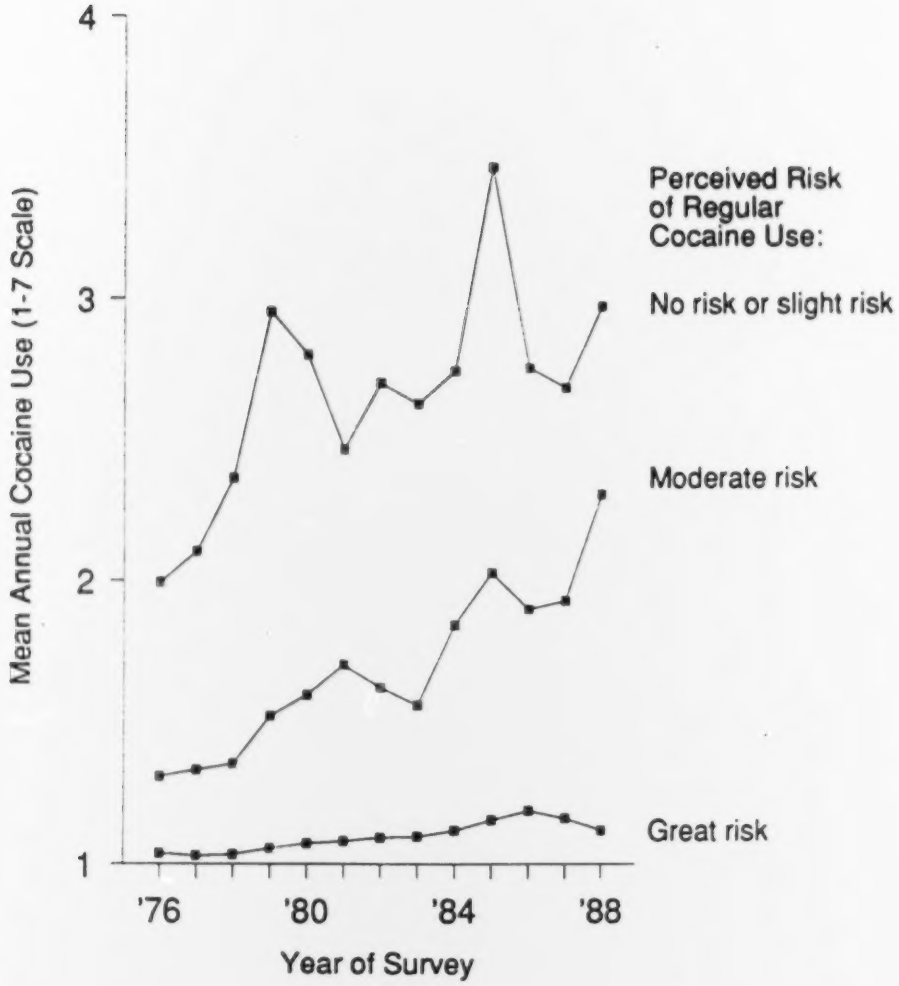


Figure 6: Trends in Annual Cocaine Use Shown Separately for Three Levels of Perceived Risk of Regular Cocaine Use. High School Seniors, 1976-1988.

APPENDIX

Contrasting Patterns of Correlations -- Four Classes of Seniors (1985-88) Versus Thirteen (1976-88)

Our earlier analysis of factors linked to the decline in marijuana use made use of eleven classes of seniors (1976-86), and we have now extended that analysis to include two more classes. For reasons discussed in the text, the present analysis of factors linked to the decline in cocaine use focuses primarily on a shorter interval (encompassing the classes of 1985-88). This appendix presents correlation matrices for both intervals, reviews differences (and similarities) in results, and discusses some implications of the differences.

There are several reasons for expecting that some of the correlations will differ across the two intervals. First, we have noted important secular trends in use of both marijuana and cocaine during the period in question, and such trends introduce additional variance which will tend to reduce correlations with other factors—unless those factors show parallel secular trends. Second, shifts in drug use rates from year to year usually also involve shifts in variance, which in turn can influence the size of correlations. For example, during the late seventies relatively few high school seniors used cocaine, and correlations involving cocaine use in the years 1976 through 1978 were lower than correlations in the early eighties (when more seniors used cocaine). For marijuana, on the other hand, mean levels of use have declined since the late seventies, and there has been a corresponding decline in overall variance and in the size of most correlations involving marijuana (see Bachman et al. 1986, for details on such trends in correlations, comparing each graduating class from 1975 through 1986).

We turn now to a number of specific comparisons of correlations based on the two intervals; we also include a few comments about correlations for the dataset spanning 1980-88 (although the matrix is not included in this appendix):

1. Individual reports of cocaine use and marijuana use are substantially correlated, but the relationship is stronger when we confine our attention to seniors from the classes of 1985-88 ($r = .50$) rather than the longer interval of 1976-88 ($r = .44$). For the dataset spanning 1980-88, the correlation value is intermediate ($r = .48$.) This difference in correlations very likely reflects both factors discussed above. First, the secular trends for both marijuana and cocaine use are similar in direction (both downward) for the period 1985-88, whereas that is not true for earlier years. Second, cocaine variance is slightly larger for the 1985-88 dataset; and although

marijuana variance is distinctly smaller for this shorter interval, the distributions for the two variables are less disparate during recent years, thus making possible a higher correlation.

2. The similarity in secular trends for marijuana and cocaine use during the 1985-88 interval is clearly evidenced by the correlation between the annual mean usage scores for the two drugs (r = .99); however, the trends are sufficiently different for the earlier years that the corresponding correlation over the longer interval of 1976-88 is actually negative (r = -.29). For the intermediate interval of 1980-88, the correlation is positive but fairly low; r = .34.

3. Of central significance in the present analysis are the correlations between individually reported use of a drug and the mean use among seniors, because we treat such correlations as indicating the extent to which individual variance in drug use is "explainable" or "interpretable" in terms of the overall secular trend in use during the interval in question. For marijuana, the correlation is twice as large over the full interval from 1976-88 (r = .16) as for the short interval from 1985-88 (r = .08); this reflects the fact that marijuana use had declined substantially by the mid-eighties (i.e., there was relatively less individual variance), whereas there had been a considerably wider year-to-year variation in use during the earlier years. For cocaine, the correlations are nearly the same for the long interval (r = .07) as for the short one (r = .06); this reflects the fact that although the long interval includes a period of sharply increasing cocaine use during the late seventies, along with the recent period of sharp decline, it also includes the period of little overall change in cocaine use during the first half of the eighties.

4. Also of central significance are the negative correlations between perceived risk or disapproval indexes, on the one hand, and the secular trend indicators (i.e., mean usage scores) for marijuana and cocaine, on the other hand. Here again we see some very important differences between the two intervals. Looking first at the relationships involving marijuana, we find that over the full 1976-88 interval mean use is fairly strongly linked to the (individual level) measures of both perceived risk (r = -.29) and disapproval (r = -.23); but across the shorter 1985-88 interval the correlations are much smaller (r = -.08 for both risk and disapproval). For cocaine, however, the 1885-88 interval provides the stronger correlations between mean use and both perceived risk (r = -

.19) and disapproval (r = -.13); for the longer 1976-88 interval the correlations are near zero (-.04 and -.02, respectively). In each case, the correlation values for the 1980-88 interval lie approximately midway between those for the longer and shorter intervals.

5. Other important correlations are those between drug use and the measures of disapproval and perceived risk. The correlations show no large or consistent differences across the two intervals; rather these individual-level relationships indicate that drug use is strongly linked to perceived risk, and even more strongly linked to disapproval. The correlations involving marijuana are stronger than those involving cocaine (differences of .10 to .15), and those relating to disapproval are stronger than those relating to perceived risk (differences of .05 to .13).

6. Many of the correlations in the matrices are quite similar for either the short (85-88) or the long (76-88) interval. In particular, the interrelations among the "lifestyle" variables are generally unaffected by the length of the interval (and within each of the intervals, any differences between the Form 3 and Form 5 versions of these correlations reflect only sampling error).

7. Relationships between the "lifestyle" variables and the individual drug use measures might be expected to differ across time intervals as a result of secular trends in drug use and/or changed variance in drug use. In fact, however, relationships between lifestyle factors and cocaine use are very similar across the two intervals; and those for marijuana are fairly similar, although several correlations are somewhat stronger over the longer interval (which involves distinctly greater variance in marijuana use).

8. Somewhat like the patterns described immediately above are those linking the "lifestyle" variables to perceived risk and disapproval of drug use. Several of the correlations are somewhat stronger over the longer interval, and in this case the differences appear for both marijuana use and cocaine use.

9. Finally, for the sake of completeness, we note that the "lifestyle" variables are essentially uncorrelated with the mean scores in drug use over either of the intervals. (The sole exceptions are the small correlations with the income measure, and these occur simply because the dollar income of

seniors has been steadily rising—although purchasing power is another matter.) This lack of relationship between the "lifestyle" measures and the secular trend in marijuana use was evident in our earlier analysis, and it is now clear that trends in cocaine use also are unrelated to the "lifestyle" variables.

Appendix Table A

Means and Standard Deviations

		Mean				S.D.			
		76–88		85–88		76–88		85–88	
	Range	Form 5	Form 3	Form 5	Form 3	Form 5	Form 3	Form 5	Form 3
Individual Annual Marijuana Use<	1–7	2.550	2.488	2.158	2.101	2.157	2.129	1.875	1.836
Individual Annual Cocaine Use	1–7	1.243	1.225	1.259	1.241	0.844	0.813	0.909	0.871
Grades	1–9	5.795	5.780	5.735	5.744	1.922	1.909	1.930	1.920
Truancy	10–65	16.380	16.326	15.959	15.899	9.695	9.692	9.418	9.359
Hours Worked per Week	1–8	4.117	4.119	4.117	4.100	2.332	2.338	2.306	2.308
Average Weekly Income	1–7	5.182	5.166	5.481	5.477	1.907	1.917	1.838	1.838
Religious Commitment	10–40	27.945	27.939	27.077	27.067	9.119	9.004	9.164	9.097
Political Beliefs	1–6	3.178	3.148	3.182	3.134	1.037	1.044	1.064	1.054
Evenings Out per Week	1–6	3.575	3.527	3.540	3.487	1.305	1.311	1.302	1.299
Sex (M=1, F=2)	1–2	1.515	1.521	1.520	1.526	0.500	0.500	0.500	0.499
Perceived Risk of Marijuana Use	1–4	2.653	NA	2.947	NA	0.852	NA	0.731	NA
Perceived Risk of Cocaine Use	1–4	3.354	NA	3.485	NA	0.729	NA	0.611	NA
Disapproval of Marijuana Use	1–3	NA	1.995	NA	2.213	NA	0.756	NA	0.712
Disapproval of Cocaine Use	1–3	NA	2.595	NA	2.692	NA	0.612	NA	0.534
Mean Marijuana Use per Year	NA	2.506	2.513	2.135	2.135	0.322	0.321	0.128	0.128
Mean Cocaine Use per Year	NA	1.235	1.234	1.261	1.261	0.058	0.058	0.053	0.053
N (wtd., maximum)		36774	39754	11501	12102				

Appendix Table B
Correlation Matrices

Correlation Matrix Based on Questionnaire Form 5[a]

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Individual Annual Marijuana Use<		.4459	-.2026	.3543	.1299	.1175	-.2448	.1695	.3128	-.1032	-.5893	-.5239	.1588	-.0519
2. Individual Annual Cocaine Use	.5076		-.1300	.2449	.0882	.1041	-.1498	.1136	.1831	-.0515	-.2547	-.4510	-.0086	.0677
3. Grades	-.2101	-.1298		-.2139	-.0751	-.0739	.1379	-.0427	-.1173	.1500	.1055	.1224	.0194	-.0096
4. Truancy	.2996	.2119	-.2035		.1243	.1266	-.1868	.1086	.2366	-.0679	-.2678	-.2499	.0477	-.0336
5. Hours Worked per Week	.1310	.0991	-.0877	.1332		.6549	-.0813	.0019	.0458	-.0904	-.0808	-.0609	.0218	.0083
6. Average Weekly Income	.1388	.1028	-.0766	.1388	.6471		-.0823	.0227	.1199	-.1026	-.0571	-.0719	-.1106	.0981
7. Religious Commitment	-.2299	-.1414	.1340	-.1568	-.0880	-.0851		-.1543	-.0965	.1239	.2550	.2106	.0532	.0099
8. Political Beliefs	.1358	.1105	-.0420	.0992	-.0114	.0019	-.1536		.0739	.0080	-.1694	-.1379	.0039	-.0313
9. Evenings Out per Week	.2819	.1787	-.1105	.2195	.0477	.1402	-.0968	.0632		-.0957	-.2420	-.2051	.0369	-.0363
10. Sex (M=1, F=2)	-.0831	-.0402	.1598	-.0678	-.0664	-.0724	.1199	.0098	-.1052		.0754	.0797	-.0103	.0105
11. Perceived Risk of Marijuana Use	-.5347	-.2996	.1214	-.2103	-.0779	-.1007	.2589	-.1436	-.2178	.0929		.5554	-.2966	.1674
12. Perceived Risk of Cocaine Use	-.4569	-.4286	.1301	-.1706	-.0767	-.0799	.1794	-.1109	-.1702	.0642	.5733		-.1297	-.0386
13. Mean Marijuana Use per Year	.0779	.0645	.0015	-.0188	-.0029	-.0527	.0216	-.0073	-.0030	-.0051	-.0815	-.1827		-.2817
14. Mean Cocaine Use per Year	.0747	.0638	-.0024	-.0204	-.0024	-.0514	.0194	-.0107	-.0043	-.0025	-.0826	-.1857	.9873	

Correlation Matrix Based on Questionnaire Form 3[a]

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Individual Annual Marijuana Use<		.4408	-.2009	.3495	.1143	.1193	-.2534	.1640	.3044	-.1056	-.6681	-.5871	.1550	-.0438
2. Individual Annual Cocaine Use	.4989		-.1111	.2469	.0657	.0929	-.1587	.1020	.1732	-.0456	-.2860	-.5063	-.0117	.0703
3. Grades	-.1925	-.1238		-.2038	-.0785	-.0691	.1412	-.0340	-.1123	.1507	.1536	.1475	.0161	-.0085
4. Truancy	.2906	.2350	-.1828		.1135	.1234	-.1742	.1152	.2305	-.0740	-.2967	-.2901	.0466	-.0363
5. Hours Worked per Week	.0929	.0669	-.0979	.1100		.6435	-.0738	.0229	.0419	-.0910	-.0905	-.0570	.0322	.0046
6. Average Weekly Income	.1246	.0902	-.0793	.1330	.6270		-.0799	.0114	.1162	-.0953	-.0655	-.0692	-.1096	.1074
7. Religious Commitment	-.2323	-.1484	.1248	-.1504	-.0854	-.0811		-.1534	-.0807	.1226	.3140	.2437	.0586	-.0059
8. Political Beliefs	.1373	.0667	-.0259	.0843	.0199	.0132	-.1326		.0626	.0010	-.2020	-.1720	.0206	-.0273
9. Evenings Out per Week	.2587	.1606	-.0854	.1935	.0284	.1339	-.0747	.0575		-.0971	-.2622	-.2164	.0433	-.0373
10. Sex (M=1, F=2)	-.0727	-.0315	.1323	-.0655	-.0584	-.0604	.1040	.0496	-.0986		.0620	.0743	-.0002	.0067
11. Disapproval of Marijuana Use	-.6635	-.3416	.1528	-.2682	-.0737	-.1157	.3162	-.1920	-.2267	.0359		.5919	-.2339	.0976
12. Disapproval of Cocaine Use	-.5455	-.5341	.1256	-.2319	-.0596	-.0744	.2073	-.1260	-.1684	.0347	.6042		-.1158	-.0172
13. Mean Marijuana Use per Year	.0616	.0592	.0073	-.0164	-.0103	-.0547	.0292	.0117	.0038	.0042	-.0834	-.1253		-.2916
14. Mean Cocaine Use per Year	.0611	.0607	.0045	-.0164	-.0099	-.0516	.0275	.0126	.0023	.0050	-.0808	-.1278	.9872	

[a] Correlations based on four classes of seniors (1985–1988) below the diagonal; correlations based on thirteen classes of seniors (1976–1988) above the diagonal.

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